



CALIFORNIA ACADEMY OF SCIENCES
AQUARIUM MUSEUMS PLANETARIUM

ANNUAL REPORT 1975-1976
CALIFORNIA ACADEMY OF SCIENCES

CALIFORNIA ACADEMY OF SCIENCES

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A MESSAGE FROM THE CHAIRMAN

The Academy has had an eventful year! The dedication and opening on June 30, 1976—the last day of the year covered by this report—of the Wattis Hall of Man and the adjacent Wattis Gallery, the Atholl McBean Gallery and the Patricia Price Peterson Gallery, certainly constituted the highlight. The Academy's staff, my fellow trustees and I are proud of these additions to our facilities; if any reader has not yet visited them, I urge him or her to do so. The opening of Wattis Hall marked the Academy's return to the field of Anthropology for the first time since the 1906 fire and earthquake destroyed the then museum and in particular that department and its collections.

With regret I must report that the second major addition under construction—the Fish Roundabout, gift of the G. H. C. Meyer Family Foundation—was not completed during the year. However, the technical problems appear to be nearing resolution, and we look forward to the dedication and opening of the Roundabout in the near future.

Cover, the Academy's new Garden Entrance for visitors from Middle Drive. Left, Trustees met the 'Ksan Indian carvers after the June 1976 meeting of the board.

Substantial new facilities are encompassed in these additions. We now have an entrance, nicely landscaped, on Middle Drive which opens into the McBean and Peterson Galleries and, adjoining, the Wattis Hall and Gallery. Deliveries and pick-ups from the Academy are now below ground, under these added facilities, as is a 51 car staff garage which has substantially eased parking problems in the vicinity of the Academy.

Above Wattis Hall are two more floors, occupied by the Departments of Entomology and Botany. The former is named in memory of the late William H. Noble from whose estate the Academy has received a very substantial bequest. Relocation of these departments has in turn eased greatly the space problems of our other scientific departments.

This year also saw—in our courtyard—a 37 foot cedar tree carved into a magnificent totem pole. The work was done by skilled Indians from the Gitksan tribe of British Columbia. The tree itself was the gift of Crown Zellerbach Corporation; transportation for the craftsmen and their families was provided by CP Air and Western Airlines; and the British Columbia Department of Recreation and Travel Industry co-sponsored the project. The raising of this totem pole on June 22 was an exciting event indeed.

While the Paul L. and Phyllis Wattis Foundation, the G. H. C. Meyer Family Foundation, the Atholl McBean Foundation, Mr. Rudolph A. Peterson and the Patricia Price Peterson Foundation, and the estate of William H. Noble have made gifts of great substance toward our new facilities, I would be remiss if I did not acknowledge certain others. The Walter Haas, Peter Haas, Daniel Koshland, Madeline Haas Russell, and Brooks Walker families and foundations, the San Francisco Foundation, the James Irvine Foundation, the National Endowment for the Arts and the Bechtel, Lakeside and S. D. Bechtel, Jr. Foundations deserve special gratitude, but as I mention these, I feel inadequate. Several other major donors have requested anonymity. Further, I should like, if space permitted, to thank by name every donor who made these expansions possible, whether that donor gave one or many thousands of dollars. It has been, after all, a combined effort, and every contributor's support has been—and continues to be—critical to our endeavors.

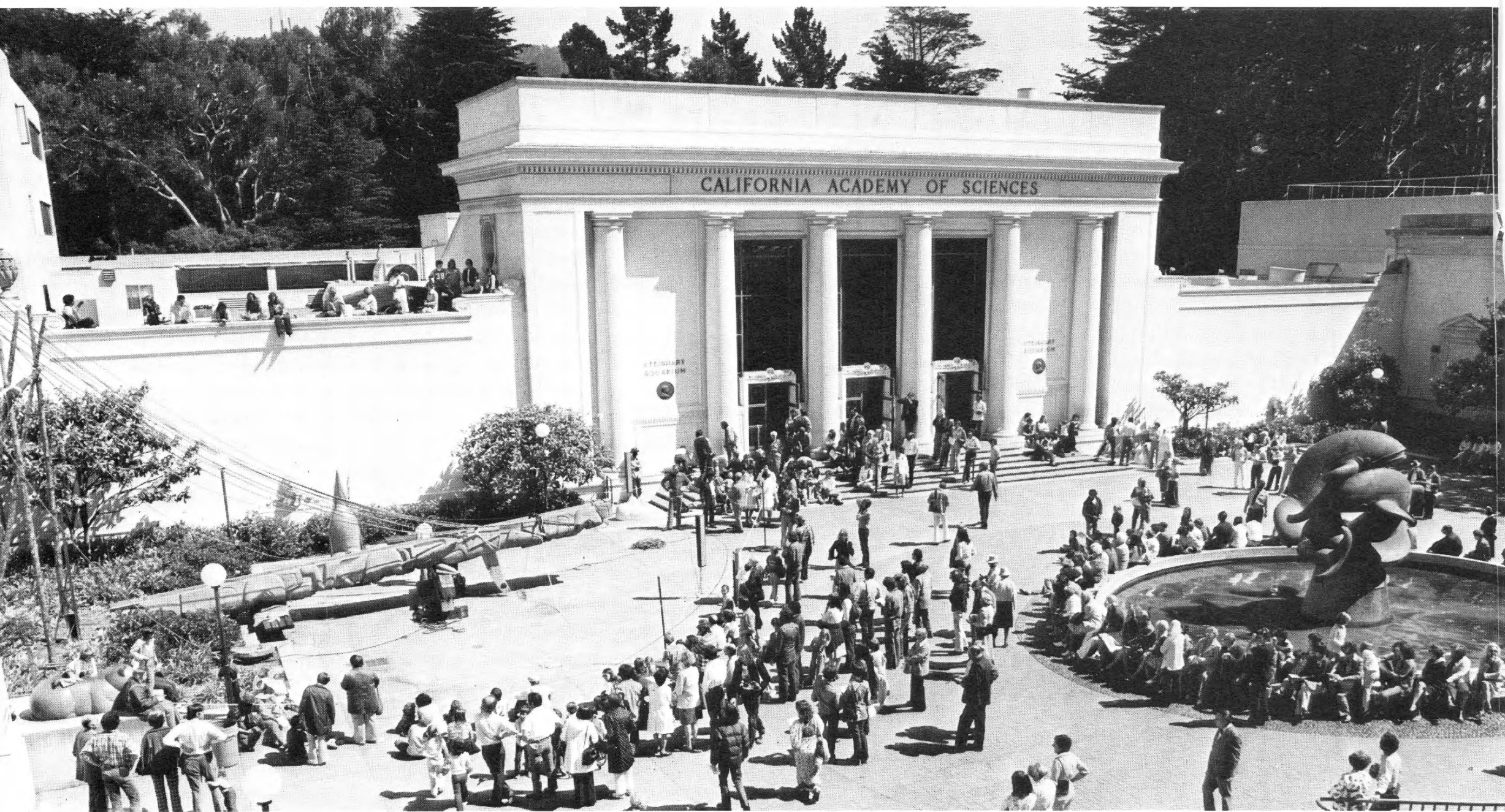
I have dwelt at length on our additions, possibly failing thereby to do justice to the Academy's staff and to the Docents and volunteers who so ably reinforce that staff. In particular, I must acknowledge with genuine regret the retirement during the year of Dr. Robert T. Orr as Associate Director. Bob Orr has served the Academy loyally for more than 40 years; however, I note with pleasure that Bob and his lovely wife Margaret continue their Academy association on a part-time basis, in particular directing the Docent training program and leading Academy members' trips.

On behalf of my fellow trustees and myself, I express heartfelt gratitude to our hardworking and totally dedicated staff, so ably led by George Lindsay whose report follows, to our many members and contributors, and to our indispensable Docents and volunteers.

Our doors are open in welcome, and our hearts in thanks, as we enter our 1976-77 year. We will greet the Roundabout with great excitement, and those of you who have not yet visited Wattis Hall must—please—do so!

Paul L. Davies, Jr.

Paul L. Davies, Jr.
Chairman, Board of Trustees.



REPORT OF THE DIRECTOR

The construction of the Wattis Hall of Man addition, the most ambitious project in the 123 year history of the California Academy of Sciences, was completed during the 1975-1976 fiscal year. Wattis Hall and Gallery and the Patricia Price Peterson and Atholl McBean Galleries increased the Academy's exhibition areas 21,395 square feet. Two upper floors housing the Botany and Entomology Departments added 28,500 square feet of research space, and basements provide 20,500 square feet for service functions and vehicle parking. The Academy now contains eight acres of floorspace.

Ground was broken for the Wattis Hall of Man project on January 16, 1974, and the buildings were accepted December 8, 1975. The two research departments moved in, and exhibit installation was started in the public areas. The building was dedicated June 30, 1976. Full development of the Wattis Hall anthropological exhibits will require at least two more years.

The opening of the Fish Roundabout, a separate but simultaneous building project, was disappointingly delayed. While its structure was completed on schedule, unexpected technical prob-

lems were encountered in the installation of the thick viewing windows of the 90,000 gallon circular tank. The difficulties appeared to be nearing resolution at the end of the report period.

The Academy had 1,443,896 visitors during the year, not including more than 100,000 who attended evening programs and meetings. Attendance was 6.1 percent greater than the previous year and 20.1 percent more than that of the 1973-1974 fiscal year. The increase was in spite of the disastrous city workers strike of March and April, 1976, during which the Academy remained open but municipal bus transportation was not available.

PUBLIC ACTIVITIES

STEINHART AQUARIUM

John E. McCosker, Superintendent. The unique presence of a large public aquarium within a natural history museum is a major reason for the Academy's popularity. Living displays in Steinhart Aquarium complement and

enhance the traditional exhibits and dioramas of the museum. The Aquarium is recognized worldwide for the quality and diversity of its aquatic animals, and it also displays an important collection of amphibians and reptiles. It is the largest Academy department and receives substantial support from the City of San Francisco, as well as from many friends and benefactors.

This was the Aquarium's 53rd year, and the staff concentrated on the revitalization of its older displays as well as preparation for the completion of the Fish Roundabout, the new oceanic tank for pelagic fishes. An open, free-standing tidepool exhibit was constructed in the center of the Roundabout's entry level and attractive educational graphics were applied to outer walls.

The Aquarium became the Bay Area information center about sharks, resulting from the interest generated by the film "Jaws." Staff members answered public inquiries and were featured on radio and television programs. Shark collecting trips aboard Jeffery Meyer's boat, *M/V Grunt*, were particularly timely and allowed newsmen and television filmers to participate in Aquarium activities.



Left, the totem pole, carved by Earl Muldoe, Walter Harris, and Vernon Stephens, was raised on June 22, 1976. Above, Geraldine Lindsay joined the wives of the chiefs in anointing the pole. Right, Peter Raven, once a Junior Academy member and now Director of the Missouri Botanical Garden, with Academy Director George Lindsay at the dedication of the new Botany Department on May 15, 1976.



There were more distant collecting trips. Bruce Markham and several friends sponsored one to the Gulf of California, and Steinhart Divers, a volunteer support group, collected near Catalina and San Clemente Islands, in Hawaii, and in the Bahamas. Jane Culp collected Hawaiian fishes. Walter Schneebeli, staff collector, made 86 shorter trips during the year and returned with 12,085 living specimens.

The Aquarium facilities and living animals are heavily used research assets for behavioral, evolutionary, and physiological studies, as well as for the investigation of the symptoms and treatment of fish diseases.

Fred Herms, Aquarist since 1947, retired on June 30, 1976. During the year Edwin Janss, Jr. was appointed an Associate of the Aquarium, in recognition of his continuing interest and support. Dr. Sylvia Earle, internationally known for her contributions to the fields of phycology, marine ecology, saturation diving, and wildlife conservation, was made a Research Associate.

The Academy is indebted to many organizations and individuals for their ongoing support of Aquarium activities and development. The G. H. C. Meyer

Family Foundation, Jeffery Meyer, Mr. and Mrs. Maurice Rakowicz, the Janss Foundation, Edwin Janss, Jr., the Charline H. Breeden Foundation, Vic Breeden, Steinhart Divers, United Air Lines, and Mr. and Mrs. Foster Bam are among those individuals and organizations who have assisted the Aquarium this year.

MORRISON PLANETARIUM

Robert D. Risser, Supervisor. Morrison Planetarium's four millionth admission paying visitor saw the 3:30 p.m. performance of *The Christmas Star* on 14 December 1975.

Total planetarium attendance and income were the largest in its twenty-four year history. A substantial drop in conventional and special school program attendance was offset by the popularity of "Laserium."

There were 786 performances of five regular planetarium programs which attracted 129,047 people, and 111 special student shows were seen by 24,383 children who came in class groups. Attendance at 613 "Laserium" sound and light shows was 160,556. Total paid admissions to Morrison Planetarium were

304,426, and net income was \$180,484.

Part of the "Laserium" income was allocated to a Planetarium Special Fund for repairs and improvements. The entrance of the chamber was remodeled and the doors were veneered with a photo-mural. The control room phase of an electrical systems overhaul of the planetarium was nearly completed by Chief Technician Cary Ponchione without interfering with the regularly scheduled programs.

EXHIBITS DEPARTMENT

Ernest R. Rook, Curator. This was a year of many activities. An environmental theme for the anthropological exhibits of Wattis Hall was selected by a research team headed by Christine Russell, assisted by Richard Gould, consultant, Nancy Bronstein, anthropologist, and designer Dennis Carlson. The study was in part financed by the National Endowment for the Arts. Structures for six of the projected Wattis Hall exhibit features were completed by a crew of skilled craftsmen directed by Bradley Buchanan. The dioramas were planned and constructed by



Above, Sylvia Earle, Curator of Phycology, netting a marine snake in the Coral Sea. Upper right, the *Supervan* takes the Academy to the community. Right, Superintendent John McCosker and South African visitor Margaret Smith confer on coelacanths.

specialists, many of them volunteers. Robert Bjorkland supervised the exhibitions which opened in Wattis Gallery, Patricia Price Peterson Gallery, and Atholl McBean Gallery. Joan Bacharach, who was in charge of the Academy's Anthropology collections, assisted with the gallery projects and supervised the procurement of specimens for Wattis Hall. Special exhibitions from the Charles and Ruth C. Elkus collections of Southwest Indian artifacts and the Carl Rietz Food Technology collection were installed. Professor F. Clark Howell advised artist Richard Cook who illuminated the Early Man Wall. Taxidermist Fred Funk broke records with his wild boar, Australian dingo, and ring seal mounting to meet the deadline for opening the hall. Four Smithsonian interns headed the list of more than one hundred fifty volunteers who worked in the Exhibits Department.

Betsy Jewett designed the photomontage of faces which backs Wattis Hall's Living Arts stage. William Estavillo supervised its execution, and was also assigned the general responsibility for mineral exhibit development.

Fred Funk made an extended safari in Kenya, to get specimens for the Dean

Witter African Bird exhibit. Robert Bjorkland and Stuart Meehan traveled to Germany to study new anthropology and science museums there, and enroute visited London, New York, and Washington D.C. institutions.

Temporary exhibitions during the year included "The Grand Canyon," color photographs by Donald Briggs; Lloyd Ullberg's black and white "Photographs of Twenty-Five Years"; the Smithsonian's "Crown Jewels"; "Space Paintings" by Geoffrey Chandler; "Tidelines" by Ernest Braun; "Copernicus"; and the "Sepik River of New Guinea."

DOCENT COUNCIL. Mrs. Roy Borgonovo, Chairman, and Diane Butler, Secretary-Coordinator. The Council's membership of 130 volunteers presented tours and special programs for more than 11,000 students and other visitors, and participated actively in special projects, educational enrichment, and Academy functions.

SUPERVAN, the outreach vehicle funded by a grant from the National Endowment for the Arts, was equipped and started to work. Classroom programs for nearly 1,800 students were presented during *SUPERVAN*'S first weeks

of operation.

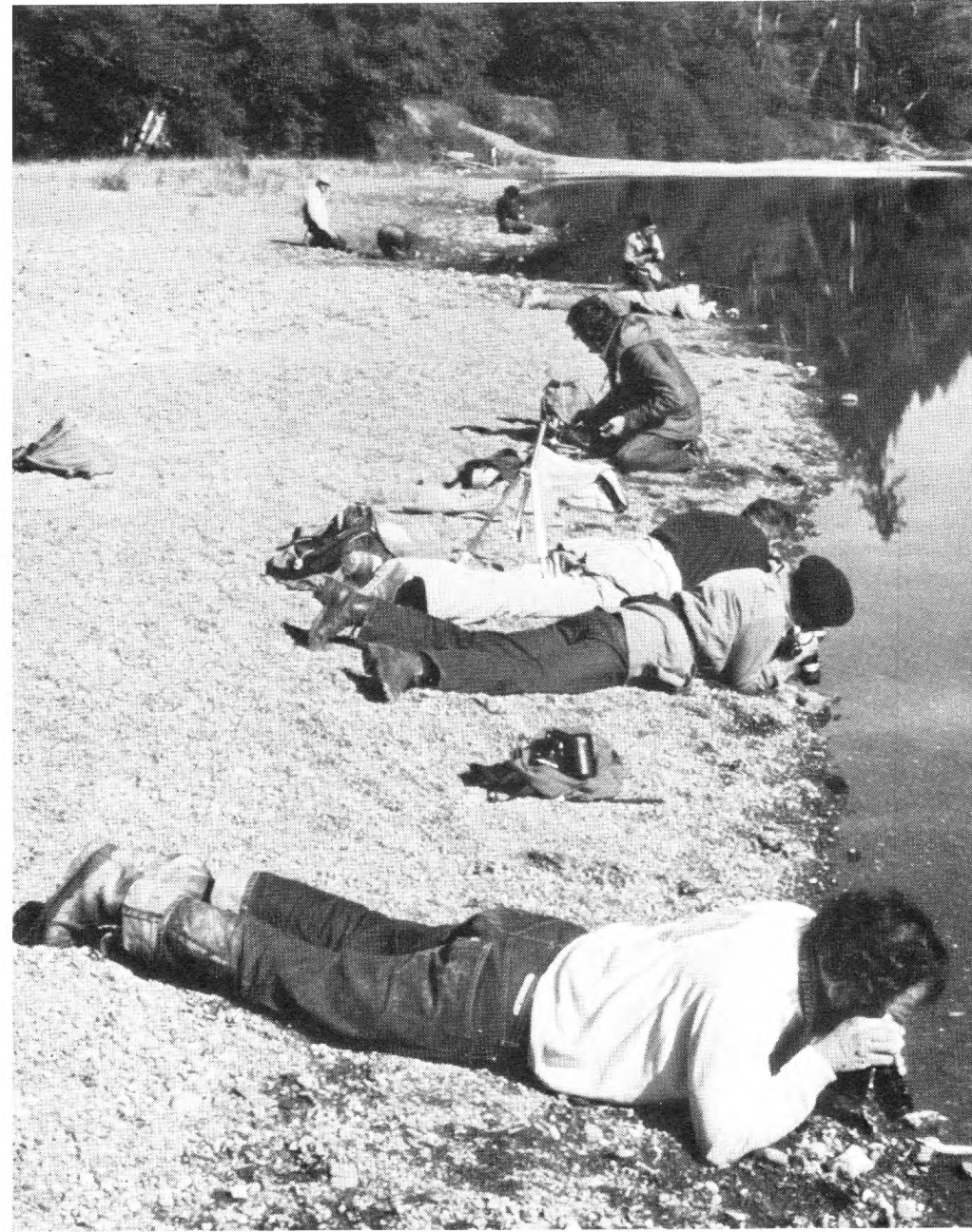
Forty-seven trainees received their docent badges and certificates of completion for the Basic Course, and one-fourth of them also earned four units of college credit. Education Chairman Betty Hall worked closely with Dr. Robert T. Orr, the primary instructor, during the twenty-four weekly training sessions.

The Aquarium Course was also repeated, under the direction of Dr. John McCosker and docent Joy Lippincott, with twelve weekly sessions.

An evening lecture series in Anthropology coordinated by Nancy Cooper-Smith and Monnie Curran was open to staff and membership. Dr. Michael Moratto, Dr. F. Clark Howell, and Dr. Richard Gould presented this preliminary course of study for docents who will tour Wattis Hall of Man.

Jean Junge, Chairman of Programs for the Handicapped, was responsible for classes in Manual Communication for Deaf, so that sign-language tours can be given. She also developed special tactile and wheelchair exhibits for handicapped visitors to the Academy.

TOURisms, the docent newsletter, was edited by Elizabeth True.



Upper left, Welton Lee and James Morin studied the catch of a shrimp trawler in the Gulf of California. Left, Academy members climbed a volcano in the Galapagos Islands. Above, students found the "Wet Belly Photography" course was appropriately named.

DEVELOPMENT AND MEMBERSHIP. Kathleen F. Bowman, Development Officer. There were 9,565 members on July 1, 1976 compared with 8,454 on July 1, 1975. Large attendance required three presentations of each of the monthly member's meetings. Two thousand members and their guests attended an Open House which was held on November 12, 1975. Trustee Mrs. Ernest Lilienthal chaired the Membership Committee.

Trustee John A. Sutro headed the "Friends of the Academy," a group of supporters who annually donate one thousand dollars or more. There were seventy-four this year, as listed on page 29.

The Bay Area business community continued to provide help for the Academy, with the encouragement and appreciation of the Corporate Support Committee chaired by Frank E. Hayward. A list of corporate and foundation donors is on page 28.

The Academy's volunteer program is a long-standing activity which is now coordinated by Mrs. Frances Reed. Approximately 300 volunteers worked in nineteen departments. The exhibits in Wattis Hall and the entrance galleries

could not have been produced without their help. A list of volunteers is on pages 22-23.

JUNIOR ACADEMY. Kenneth E. Lucas, Supervisor. The Junior Academy is a center for young people who are interested in the natural and environmental sciences. Twenty-eight courses, several of which were new to our curriculum, were attended by more than 500 members between the ages of eight and nineteen.

Field and laboratory classes continued to be most popular. As the number of courses offered has increased, new instructors with special skills have been recruited for the teaching staff.

The Junior Academy facilities were again used by school groups, outside organizations, and the Academy's adult education program. Blind children experienced some special exhibits which were designed for the handicapped.

A new Junior Academy facility was planned by Pflueger architects for the ground floor area vacated by the Botany Department. It will provide more space for teaching and will make possible the lowering of the minimum age of participants.

EDUCATION OFFICE. Lysbeth Fritz, Coordinator. This office is in charge of the diverse activities of Academy members' trips, adult education, and the monthly members' programs.

Twenty-six classes were offered and 554 students enrolled. Three travel symposiums attracted 134 more students. The L.S.B. Leakey Foundation and the Academy co-sponsored a lecture, "The Serengeti Lion," by George Schaller.

Eighteen trips were offered under the Travel Program, and 572 people participated. Harriett Quarre took twenty to East Africa. Dr. and Mrs. Robert T. Orr led twenty-six through South America, South Africa, and the Seychelles. Eighty-three members floated down various western rivers. There were also bird trips and flower trips, rock trips and mushroom trips, and a whale trip. Mrs. George Lindsay was chairman of the Travel Committee.

Monthly members' meetings required three sessions to accommodate those who wanted to attend, and all featured illustrated lectures.

J. W. MAILLIARD, JR., LIBRARY. Ray Brian, Librarian. The library had difficulty in meeting its primary obligation



Two beautiful galleries flank the new Garden Entrance from Midde Drive. Left, the Patricia Price Peterson Gallery opened with the Victor Jose Moya collection of Mexican masks, which was loaned to the United States in honor of its Bicentennial. Right, the Atholl McBean Gallery housed the opening exhibition of selected pieces from the Pre-Columbian collection of Mr. and Mrs. L. K. Land.

of serving the research staff of the Academy and at the same time providing reference materials for the industrial and broad educational communities. While the Library's materials and salary budgets were more than doubled during the past decade, the cost of books and journals also increased and the expanding research departments required more titles.

Reclassifying the library from the Dewey to the Library of Congress system continued. During the year 226 books and 356 serial titles were purchased, and 232 volumes were bound. Exchange agreements were maintained for the publications of 611 other learned institutions and societies.

PACIFIC DISCOVERY. Bruce Finson, Editor, and Johan Kooy, Art Director. The Academy's own popular "journal of nature and man in the Pacific world" has attained a circulation of more than 11,000. During this report period it carried twenty-nine articles in the natural sciences. In recognition of the development of the Wattis Hall of Man, more articles on anthropology were published than in previous years.

George Lindsay is Managing Editor, and Robert I. Bowman, Robert C. Miller and Robert T. Orr are Associate Editors.

PICTURE COLLECTION. Johan Kooy, Chairman. The Picture Collection is responsible for maintaining a historical photographic record of the Academy and its expeditions. Here, too, are the museum's original art works representing western plant and animal subjects. Pictorial archives dealing with anthropology, natural history, and technology bring the department's holding to well over a million pictures. More than 22,000 slides have been entered into the collection to date and more than half that number, recently given to the Academy, are in process of being accessioned.

The Philatelic Collection of this department, organized three years ago, has initiated a permanent series of stamp displays in the Museum's new entrance gallery. Notable among recent philatelic donations are collections given by Mr. and Mrs. Park Dingwell and Mr. and Mrs. Raymond White.

The processing of many thousands of loans and accessions made within the year was facilitated by the assistance of eighteen dedicated volunteers. Gifts, pictorial and financial, account for much of the growth of the Picture Collection during this period.

PUBLIC INFORMATION. Pam Wing, Information Officer, succeeded Hal Rich-

ardson, who retired from his 17 years of Academy service on February 29, 1976. The Academy continues to enjoy the generous cooperation and support of the media—press, television and radio—in publicizing special events, Morrison Planetarium programs, Steinhart Aquarium activities, and the Academy's changing exhibits. The information officer issues press releases, assists freelance writers in their research, and answers many questions about the Academy and its activities, and also writes the monthly *News/letter* for the membership.

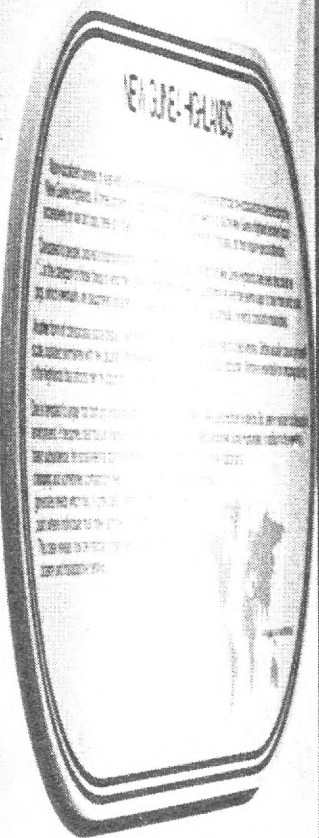
Publicity highlights of the 1975-76 year include the carving and raising of the Academy totem pole and the opening of the Wattis Hall of Man. Press announcements of special events such as the Fifth Annual Fungus Fair and the "Serengeti Lion" presentation drew large audiences.

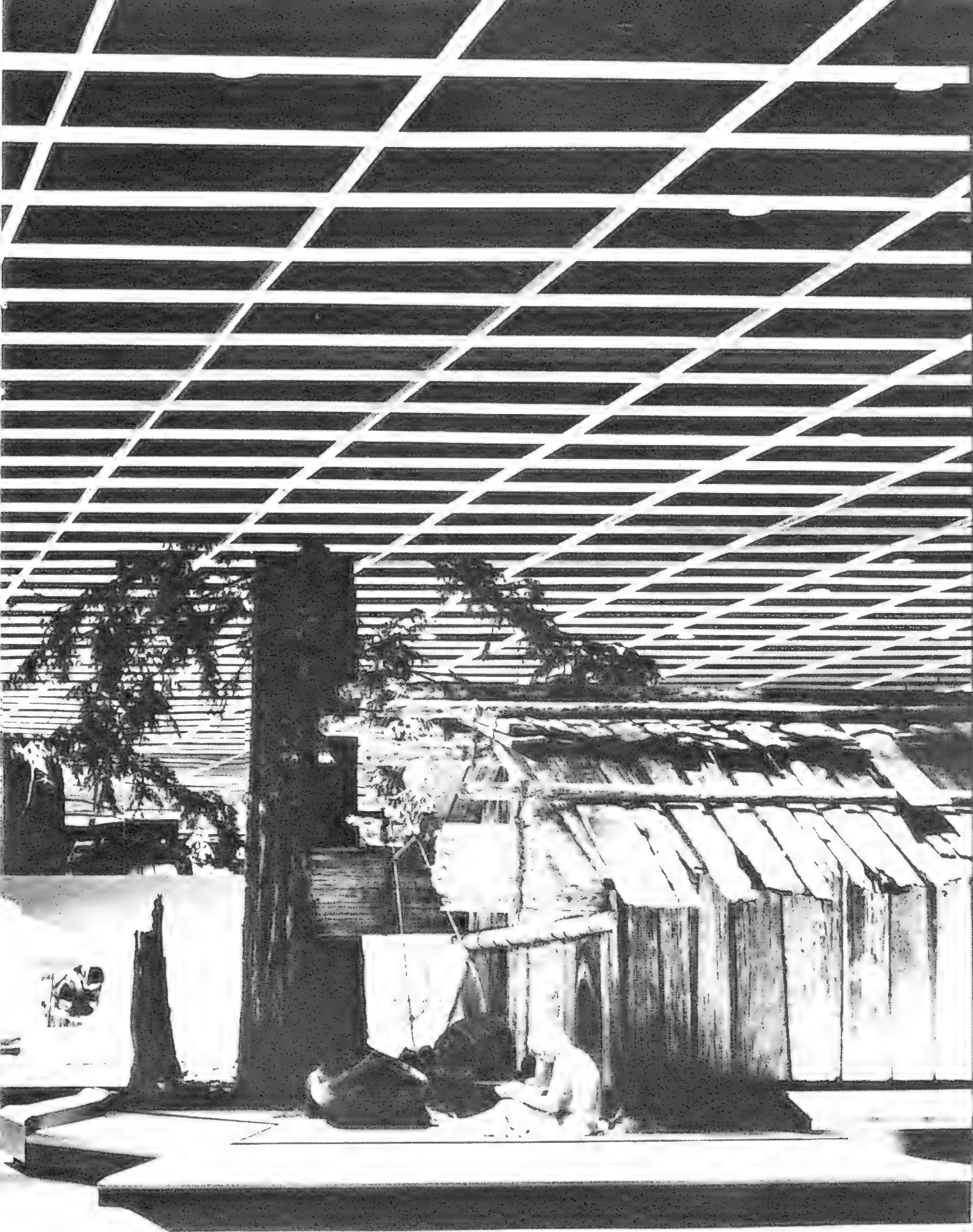
Two volunteers, Mrs. Walther Buchen and Mr. Morton Stock, maintained the press books which will be archival material in the future.

INSTRUMENT SHOP. Steven B. Craig, Superintendent. The capable staff members of the Instrument Shop are expected to solve technical problems for all the other departments. This year there was additional heavy involvement

Right, an Eskimo hunter is depicted in one of two Eskimo habitat dioramas in Wattis Hall. They were given by her friends in memory of Louise A. Boyd, Academy Trustee, Fellow, and Arctic explorer. Overleaf, Wattis Hall of Man opened on July 1, 1976 with four of the twelve planned exhibits of various societies' adaptations to diverse environments.











Above left, selections from the Southwest Indian collection of Charles and Ruth Elkus are shown in Wattis Gallery. Right, Mrs. Paul L. Wattis, her daughter Carol Wattis Wilmens, and grandson Peter Wilmens at the dedication of the Wattis Hall of Man addition.

in inspections and services connected with building construction, and case fabrication and electrical work for the new exhibits areas. For example, twenty-five steel and glass wall cases were manufactured, and some two hundred lighting fixtures were installed.

The shop staff members prefer not to use titles, but they are masters of such crafts as machinists, inspectors, electricians, printers, mechanical fabricators, and technicians.

RESEARCH ACTIVITIES

This was an outstanding year for the research departments, which are responsible for the Academy's stature in the world of science. One was reactivated after sixty-nine years, and two others moved into magnificent new quarters. The Dudley Herbarium of Stanford University was combined with the Academy Herbarium, creating a 1,300,000-specimen systematic botany resource of international importance. All of the research departments will benefit from the additional space created by the Wattis Hall of Man Proj-

ect, and each one has been completing plans for its expansion.

Dr. William N. Eschmeyer, Chairman of the Ichthyology Department, was appointed Chief Curator, with overall responsibility for all research departments and activities, on July 1, 1975. Dr. Eschmeyer found that all the Academy's biological collections are among the top ten of the nation, and some are in the top three. During the last decade the research staff size, space, and collections have more than doubled. Because of their size and historical importance the collections are utilized by scientists and advanced students around the world. In recognition of their special stature and contributions, the National Science Foundation made major facilities grants and is providing continuing curatorial support for Botany, Entomology, and Ichthyology. The National Science Foundation and other foundations and agencies also made grants for many specific research investigations.

Publications of staff members are listed on pages 20-21. Reports of the departments follow.

ANTHROPOLOGY. Joan Bacharach, Chairman. The Academy's Anthropol-

ogy Department, of which Alfred Kroeber was Curator, was destroyed by the fire and earthquake of April 18, 1906. It was not reactivated, and the Exhibits Department became custodian of various anthropological collections which the Academy subsequently received. Some of these, including the Arnold Liebes Collection, Carl A. Rietz Collection, and the Charles and Ruth C. Elkus Collections are very substantial and significant, and other smaller ones include important individual pieces.

On July 1, 1975 the Anthropology Department was reinstated. Joan Bacharach, who was serving as Curatorial Assistant in charge of anthropological collections in the Exhibits Department, was appointed Acting Chairman. She planned the layout and equipment for the new Anthropology Department.

The Academy received a grant of \$250,000 from the James Irvine Foundation in 1975, having met a condition that the grant be matched with new funds from other sources. This established a \$500,000 endowed Irvine Curatorial Chair of Anthropology. Income from that endowment made possible the establishment and insures the continuation of the Anthropology Department.



Above, a musical event in the Wattis Hall performing arts center. Above right, Academy Board Chairman Paul L. Davies, Jr., Director George Lindsay, speaker Clifton B. Kroeber, and President Lincoln Constance at the dedication ceremony. Benefactor Lewis K. Land with a piece from his and Mrs. Land's collection of Pre-Columbian artifacts exhibited in the Atholl McBean Gallery.



During the year seventeen donors contributed a total of 697 pieces to the anthropological collections. Mr. and Mrs. Alfred J. Ostheimer III gave their very important collection of pre-contact Hawaiian artifacts; the Marion Davidson Southwest Indian Collection was received and her library was purchased; and Dr. and Mrs. E. S. Ross gave their collection from N. E. Angola. A Yurok dugout canoe more than 100 years old, formerly used as a stock watering trough, was given by William Spinks. It will be restored and exhibited as one of the few remaining boats of its kind.

The principle activity of the Anthropology Department will be the proper conservation of its collections, and continuing service to the Exhibits Department in their shared responsibility for anthropological exhibit development.

BOTANY. Elizabeth McClintock, Chairman and Curator. The incorporation of Stanford University's 750,000 specimen Dudley Herbarium with the Academy's 592,160 specimen herbarium in the spring of 1976, and the opening of the new Botany Department on May 15, were outstanding events in the history of Pacific Coast plant studies. The new Botany Department occupies the 14,250

square foot third floor of the Wattis Hall of Man addition. The National Science Foundation granted \$491,000 for an electrically operated "compactor" herbarium storage system, and additional funds to move the Stanford collections to the Academy. The Foundation will also provide ongoing curatorial support during the final integration of the specimens from the two herbariums into a single series, which will be a three year project under the direction of Dr. Alva Day. Curator John Thomas, who is a faculty member of Stanford University as well as the Academy, directed the consolidation of the plant collections.

Academy President Lincoln Constance, Dr. Thomas, Dr. McClintock, and Peter Raven, Director of the Missouri Botanical Garden, spoke at the dedication of the new Botany Department. George Lindsay concluded the program with the announcement that Mrs. Edward Hohfeld had provided an initial endowment for the John Thomas Howell Curatorial Chair of Botany. Mrs. Hohfeld had earlier established a fund for the purchase of botanical books. The Board of Trustees, in appreciation of her generous interest and substantial support for the Botany and other Acad-

emy departments and activities, announced the naming of the Lilian Devendorf Hohfeld Botanical Library.

Dr. Sylvia Earle, a distinguished marine botanist, ecologist, and conservationist, was appointed Curator of Phycology.

Dr. McClintock's research concentrated on the ornamental plants of California, Dr. Breedlove's on his flora of Chiapas, Mexico and Mr. Howell's on the flora of California's Sierra Nevada. Mr. Hank van der Werf, a graduate student at the State University of Utrecht, used the herbarium for seven months while studying Galapagos plants. Dr. McClintock and Dr. Thomas attended the International Botanical Congress in Leningrad in July 1975.

ENTOMOLOGY. Paul H. Arnaud, Jr., Chairman and Curator. The insect and arachnid collections contain about 6,294,000 processed specimens, 83,831 having been accessioned during the year from 220 individuals, expeditions, and institutions. There are also 12,635 type specimens, 361 having been added during the year. In spite of the activities related to the move of the department, 96,686 specimens were loaned



Interested participants at the dedication of the new Botany Department, above the Hall of Man, included a number of people long associated with the Academy: Curator Emeritus John Thomas Howell, above; Academy Fellow Lymon Bryson, upper center; Research Associate Gordon H. True, right; and the Academy's Past President Ira L. Wiggins, far right.

to 170 persons in 247 transactions.

The major accomplishment of the department was the safe movement of the collections, libraries and offices to their new quarters which occupy the entire second floor of the Wattis Hall of Man addition. Those new quarters which cost approximately \$750,000 were paid for with funds from a bequest from William Noble, and they are dedicated to him. The department's Van Dyke and Bryant restricted funds provided equipment and furnishings for the new facilities.

Particularly noteworthy collections were received from Mr. Donald Patterson and Mrs. Clo Carroll (the late Robert G. Wind collection of 3,786 specimens of western North American butterflies) and from Mr. Thomas F. Halstead (6,360 specimens of Pyrrhocoridae and Largidae and other true bugs). An extremely valuable collection of Coleoptera published on over a century ago by T. V. Wollaston on the Atlantic Islands faunas, and representing his type materials, was curated into the collection. It had been purchased by the late Dr. Edwin C. Van Dyke in the 1930's.

The National Science Foundation provided \$43,600 for curatorial support

and equipment for the Entomology Department, and two technical assistants and a one-half time assistant curatorial position were supported by that grant.

The research activities of the staff included Dr. Arnaud's studies of the parasitoid Tachinid flies; Dr. Ross's world monograph of the order Embioptera; Mr. Kavanaugh's revision of the Nearctic species of the carabid genus *Nebria*; Dr. Rentz's revision of the decapods of Australia; Dr. Kessel's study of the Platyzoidae of North America; and Dr. Philip's revision of the Tabanidae of Mexico.

GEOLOGY. Peter U. Rodda, Chairman and Curator. During the year 2,261 lots were accessioned into the fossil and shell collections, which now contain 58,114 cataloged lots, or about one million specimens. A major collection of about 23,000 specimens of West American land snails was received from Allyn G. Smith. Other noteworthy accessions include 200 lots of fossil invertebrates from many localities in Baja California given by Tom Stump and 677 superb specimens of marine shells from the collection of the late Lucile Drennan.

A magnificent 1,300 pound mass of quartz crystals from Hot Springs, Ar-

kansas was purchased for the mineral exhibits collection, and delivered from Tucson, Arizona by Jerry Wentling. The "Fairland Crystal," a famous 210 pound sunburst of quartz crystals from Magalia, California, was bequeathed to the Academy by Susan McCorkle, and other noteworthy specimens were donated by Tenneco, Inc., A. L. McGuinness, and Jerry Wentling. Two new cases were completed in mineral hall for the display of gemstones and outstanding recent acquisitions.

Dr. Rodda continued studies of gastropod evolution evidenced in the fossil record, while Barry Roth concentrated on living gastropods. Jean Durham worked on early Cambrian fossils from western North America, and Allyn Smith continued his studies of living and fossil chitons.

Research Associate Mrs. G Dallas Hanna continued her full time volunteer service curating the Academy's invaluable diatom collection and library.

HERPETOLOGY. Alan E. Leviton, Chairman and Curator. During the year 1,736 specimens were added to the collection, which now has about 222,700 reptiles and amphibians. Robert Drewes spent six weeks on safari in East Africa,



Above, Elizabeth McClintock and Virginia Gregory demonstrate the herbarium's "compactor" storage equipment. Right, Mrs. Lillian Devendorf Hohfeld, for whom the Botanical Library was named, chats with Robert T. Orr.



ENTOMOLOGY DEPARTMENT

THIS FACILITY WAS MADE POSSIBLE
BY A BEQUEST FROM WILLIAM H. NOBLE

primarily for the study of the physiology of a remarkable "desert" frog, *Chironomantis petersi*. Dr. Leviton and Stephen Anderson continued work on the herpetofauna of southeast Asia, particularly Saudi Arabia. An important collection of amphibians and reptiles from the mountains just north of the Yemenese frontier was received from Peter Manser.

Collections of Philippine reptiles were made by Walter C. Brown and Angel C. Alcala; of Iranian reptiles by Stephen Anderson; and of Mexican reptiles by Theodore Papenfuss, who is completing his study of the life history of the two-legged amphisbaenian genus *Bipes*.

In August, 1975 Dr. Leviton was elected Secretary-Treasurer of the Pacific Division of the American Association for the Advancement of Science. This 20,000 member organization of scientists has its headquarters at the Academy.

ICHTHYOLOGY. William N. Eschmeyer, Chairman and Curator. The Ichthyology Department is an international center for the study of fishes and was ranked second in importance nationally by the American Society of Ichthyologists and Herpetologists in a report prepared for

the National Science Foundation. The National Science Foundation continued to assist in the care and management of the collection by providing \$33,500 for salaries and materials during the year. The collection grew by the addition of 9,246 specimens in 1,318 lots, including important Asian specimens collected by Mr. Franz Steiner and valuable specimens from the Moss Landing Marine Laboratory. The collection now contains about 174,700 lots. More than 125 scientists and graduate students utilized the department in their research activities.

Dr. Eschmeyer continued his investigations of scorpionfishes, and participated in a one-month cruise on the German research vessel *Walther Herwig* to Spitzbergen and the Barents Sea for his study of the commercially important redfishes of the North Atlantic. He initiated a study on Australian scorpionfishes with graduate assistant Stuart Poss and Dr. Gerald Allen, Western Australian Museum, Perth, and also made considerable progress in writing the "Peterson Field Guide to Pacific Coast Marine Fishes."

Mr. Follett continued his studies on California fishes, including archaeological investigations of aboriginal fishing

practices. Dr. Iwamoto pursued his NSF-supported research on grenadier fishes. Dr. Freihofer continued his painstaking research, with NSF support, on nerves as an aid in classification of major categories of fishes. Mrs. Dempster assisted Mr. Follett and Dr. Eschmeyer in their studies and worked on literature and nomenclatural problems. Miss Sonoda and the assistants and volunteers kept the collection in good order and processed loans and accessions promptly.

INVERTEBRATE ZOOLOGY. Welton L. Lee, Chairman and Curator. About 11,000 specimen lots were added to this active department's permanent collection, which now consists of about 81,000 lots. Noteworthy accessions included collections made on Academy expeditions to Baja California; specimens dredged from the depths of the Monterey Submarine Canyon; southeast Asian sea anemones donated by Dr. Daphne Dunn; and a large collection from shallow coastal waters given by the Moss Landing Marine Laboratories.

The year was also busy in other ways, with the institution of new standardized curatorial methods and completion of a written guide to all the procedures of



Left, a bequest from William H. Noble paid for the new Entomology Department. Above, Vincent Lee, Gail Freihofer, and David H. Kavanaugh in the reception room of the new Entomology Department, above the Hall of Man.

specimen processing and preservation. The methods will be compatible with computerized data retrieval systems.

The department is engaged in several research programs, including an inventory of the invertebrate fauna of the Farallon Islands, an investigation of south Bay marshes sponsored by Leslie Salt Company, and the San Francisco Bay Project which is a comprehensive study of the invertebrate fauna and habitats. The Association of Systematic Collections has commended the objectives and achievements of this program, which receives substantial support from Federal, State and local sources.

ORNITHOLOGY AND MAMMALOLOGY. Laurence C. Binford, Chairman and Curator. Department collections contained about 82,850 birds and 21,250 mammals at the end of the year, 248 birds and 128 mammals having been accessioned. Noteworthy additions included a striped porpoise, a spotted bat, the only North American specimen of the streaked shearwater, the only California specimen of the scaled petrel, and several other California rarities, including eastern kingbird, yellow palm warbler, emperor goose, and horned puffin. Dr. Thomas C. Poulter donated 71 voice

tapes and 110 film slides of marine mammals.

Reorganization of the mammal alcoholic collection was initiated, and that of the nest collection completed. About one-third of the Tracy Storer reprint collection was catalogued. Loans involving 924 specimens were handled, and over 650 visitor-days were logged.

Dr. Binford continued work on the birds of Oaxaca, Mexico, and with volunteer and student intern aid, escalated studies of the birds of Golden Gate Park. He conducted field work in Baja California. Dr. Binford continued as President of the Point Reyes Bird Observatory and was elected to the Board of Directors of Western Field Ornithologists.

Dr. Orr retired on August 31 and was appointed Senior Scientist. He was awarded the degree of Doctor of Science, *honoris causa*, by the University of San Francisco. Despite retirement, he continued to lead Academy members' trips, including one to South America, southern Africa, and the Seychelle Islands, taught the basic C.A.S. docent course, and gave numerous lectures to other organizations.

After many years of faithful service, Charlotte Dorsey retired as Secretary.

Mrs. Schonewald continued research on Farallon mammal bones and led two C.A.S. field trips. Research Associate John R. Arnold began a study of mockingbird expansion.

SCIENTIFIC PUBLICATIONS. Jean B. Durham, Editor. The scientific publications were improved with a new typeface, double column format, and a different printing house. These changes caused some delay in publishing and average time from receipt of a manuscript to its distribution as a published paper was thirteen months.

A total of 521 pages of scientific material were published during the fiscal year, 292 pages of *Proceedings* and 229 of *Occasional Papers*. The Publications Committee consisted of George Lindsay, Chairman, Paul H. Arnaud, Jr., Laurence C. Binford, Jean B. Durham and Tomio Iwamoto.

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George E. Lindsay
Director

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ACADEMY VOLUNTEERS

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 Virgil J. Anderson, *Aq*
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 Inga Argento, *Do*
 Betsy Arminger, *ID*
 Roderick M. Arriaga, *ID*
 Paul Baffico, *Do*
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 Melissa Barbour, *IZ*
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 Constance Lewis, *Do*
 Gerry Lindsay, *Do, M*

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 Brent Malarkey, *Do*
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 Lisa Morris, *Ge*
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 Irene Williams, *ID*
 Byron Wilson, *Aq*
 Mary Wilson, *Do, Li*
 Holly Wong, *Ic*
 Cay Zilka, *Do*
 Wilma J. Zinser, *Do*

Key to department abbreviations

<i>An</i>	Anthropology	<i>Ex</i>	Exhibits	<i>IS</i>	Instrument Shop	<i>PC</i>	Picture Collection
<i>Aq</i>	Aquarium	<i>Ge</i>	Geology	<i>IZ</i>	Invertebrate Zoology	<i>PI</i>	Public Information
<i>Bo</i>	Botany	<i>He</i>	Herpetology	<i>Li</i>	Library	<i>Pln</i>	Planetarium
<i>Do</i>	Docents	<i>Ic</i>	Ichthyology	<i>M</i>	Development/Membership	<i>SP</i>	Scientific Publications
<i>En</i>	Entomology	<i>ID</i>	Information Desk	<i>OM</i>	Ornithology and Mammalogy	<i>Ta</i>	Taxidermy

CALIFORNIA ACADEMY OF SCIENCES
BALANCE SHEETS—JUNE 30, 1976

ASSETS	Current funds		Special purpose fund	Endowment fund	Building fund
	General operating	Restricted to research			
Cash:					
Commercial accounts	\$ 54,382	\$ 20,767	\$ 67,388	\$ 9,276	\$ 4,514
Savings accounts	—	—	334,897	3,495	—
	<u>54,382</u>	<u>20,767</u>	<u>402,285</u>	<u>12,771</u>	<u>4,514</u>
Receivables:					
Research grants (note 2)	—	362,404	—	—	—
Accrued interest and dividends receivable	22,460	—	14,594	—	—
Other	27,092	—	—	—	—
	<u>49,552</u>	<u>362,404</u>	<u>14,594</u>	<u>—</u>	<u>—</u>
Inventory of guidebooks, at cost	7,644	—	—	—	—
Prepaid expenses	30,802	—	—	—	—
Investments (note 3):					
Real estate property	—	—	1,500,000	—	—
Commercial property, including a full depreciated building	—	—	—	608,084	—
Marketable securities	—	—	1,538,130	2,115,887	—
	<u>38,446</u>	<u>—</u>	<u>3,038,130</u>	<u>2,723,971</u>	<u>—</u>
Due from other funds	—	13,685	794,024	—	—
Buildings (note 4)	—	—	—	—	—
Collections, library and equipment (note 5)	—	—	—	—	—
Unamortized lease costs (amortized on the straight-line basis over 40 years)	5,603	—	—	—	—
	<u>5,603</u>	<u>13,685</u>	<u>794,024</u>	<u>—</u>	<u>—</u>
Total assets	<u>\$147,983</u>	<u>\$396,856</u>	<u>\$4,249,033</u>	<u>\$2,736,742</u>	<u>\$ 4,514</u>
LIABILITIES AND FUND BALANCES					
Liabilities:					
Accounts payable	70,647	—	27,406	—	—
Accrued expenses	3,409	—	—	—	—
Other liabilities	16,826	—	—	—	—
Due to other funds	66,111	—	—	141,838	599,696
Total liabilities	<u>156,993</u>	<u>—</u>	<u>27,406</u>	<u>141,838</u>	<u>599,696</u>
Fund balances:					
Current unrestricted, available for general operations	(9,010)	—	—	—	—
Current restricted, designated by donors for:					
Research grants	—	396,856	—	—	—
Special purposes	—	—	3,104,026	—	—
Irvine anthropology curatorial chair	—	—	527,965	—	—
Unexpended plant improvements	—	—	13,224	—	—
Current restricted, under board discretion	—	—	576,412	—	—
Endowment fund, under board discretion	—	—	—	2,594,904	—
Building fund	—	—	—	—	(595,182)
Fund balances	<u>(9,010)</u>	<u>396,856</u>	<u>4,221,627</u>	<u>2,594,904</u>	<u>(595,182)</u>
Total liabilities and fund balances	<u>\$147,983</u>	<u>\$396,856</u>	<u>\$4,249,033</u>	<u>\$2,736,742</u>	<u>\$ 4,514</u>

See accompanying notes to financial statements.

CALIFORNIA ACADEMY OF SCIENCES

STATEMENT OF CURRENT FUNDS—GENERAL OPERATING
REVENUES AND EXPENSES

YEAR ENDED JUNE 30, 1976 WITH COMPARATIVE FIGURES FOR 1975

	1976	1975
Revenues:		
Support from the public:		
Corporate contributions	\$ 44,350	\$ 57,735
Individuals, trusts and private foundations	52,518	38,527
Membership dues	135,729	119,154
Total support from the public	<u>232,597</u>	<u>215,416</u>
Operating income:		
City and County of San Francisco support of operations (note 8)	815,595	774,082
Fees and grants from others	36,219	42,667
Planetarium (including Laserium income of \$45,165 in 1975 and \$61,380 in 1976) . .	209,500	180,111
Admissions	372,203	340,481
Sales desk royalty	19,054	17,340
Restaurant royalty	76,367	68,592
Other	48,161	71,447
Total operating income	<u>1,577,099</u>	<u>1,494,720</u>
Investment income:		
Net rent from commercial building	178,077	176,005
Interest and dividends	113,486	114,778
Total investment income	<u>291,563</u>	<u>290,783</u>
Total revenues	<u>2,101,259</u>	<u>2,000,919</u>
Expenses:		
Aquarium and museum	1,002,728	940,278
Departmental research and curatorial activity	486,405	468,060
Planetarium	90,661	82,518
General and administrative	574,689	518,510
Employees' pension annuity (note 6)	46,897	33,902
Total expenses	<u>2,201,380</u>	<u>2,043,268</u>
Excess of current operating expenses over related income and support revenues (see statement of changes in fund balances	<u>\$ (100,121)</u>	<u>\$ (42,349)</u>

See accompanying notes to financial statements.

CALIFORNIA ACADEMY OF SCIENCES
STATEMENT OF CHANGES IN FUND BALANCES
YEAR ENDED JUNE 30, 1976

	Current funds		Special purpose fund	Endowment fund	Building fund
	General operating	Restricted to research			
Balance (deficit) at beginning of year	\$ 15,111	\$509,361	\$1,646,782	\$2,676,763	\$ (178,070)
Additions:					
Contributions, grants and appropriations for endowments and special purposes	—	141,186	2,762,577	19,900	270,614
Interest and dividend income	—	—	114,353	—	—
Other	—	53,267	117,707	15,228	3,261
Gain (loss) on sale of securities	—	—	(8,200)	2,885	2,520
Total additions	—	194,453	2,986,437	38,013	276,395
Deductions:					
Excess of current operating expenses over related income and support revenues	100,121	—	—	—	—
To finance expenditures of research grants	—	253,480	—	—	—
Indirect costs charged to research grants	—	36,219	—	—	—
Amounts expended for furniture, fixtures and equipment	—	17,259	53,259	119,725	64,847
Amounts expended for construction	—	—	—	—	544,330
Amounts expended for professional services	—	—	45,645	—	65,290
Other	—	—	236,688	147	19,040
Total deductions	100,121	306,958	335,592	119,872	693,507
Transfers between funds	76,000	—	(76,000)	—	—
Balance (deficit) at end of year	\$ (9,010)	\$396,856	\$4,221,627	\$2,594,904	\$ (595,182)

See accompanying notes to financial statements.

ACCOUNTANTS' REPORT

The Board of Trustees
California Academy of Sciences:

We have examined the balance sheets of the funds of the California Academy of Sciences as of June 30, 1976 and the related statement of current funds — general operating revenues and expenses and statement of changes in fund balances for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

Under generally accepted accounting principles, expenditures for

furniture, fixtures and equipment should be capitalized. The California Academy of Science charges such purchases to current expenses, the effect of which is more fully described in note 9.

In our opinion, except as noted in the preceding paragraph, the aforementioned financial statements present fairly the financial position of the California Academy of Sciences at June 30, 1976 and the results of its operations for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

San Francisco, California
October 5, 1976

Peat, Marwick, Mitchell & Co.
Certified Public Accountants

CALIFORNIA ACADEMY OF SCIENCES
NOTES TO FINANCIAL STATEMENTS
JUNE 30, 1976

1. Summary of Significant Accounting Policies

The Academy uses the accrual method of accounting with revenue recorded when earned and expenses recorded when incurred. Government grants are recognized in full when awarded. Gifts of specimens and collections are not included in the financial statements. Donated materials and services are not recorded.

The Academy has the following funds:

a. Current General Operating Fund — This fund accounts for resources used in carrying on the routine operations of the Academy in accordance with the limitations of its charter and bylaws. The governing board exercises discretionary control over this fund.

b. Restricted Funds:

1. The current "restricted to research" fund accounts for gifts and grants restricted to research projects. Certain of the general operating fund expenditures are also for research.

2. The special purpose fund accounts for resources contributed to the Academy for specific purposes, other than research projects. The resources are currently available for use, but expendable only for the purposes specified by the donors. Funds donated for plant improvements and the Irvine curatorial chair for anthropology are included in the special purpose fund category in the financial statements. Portions of the funds contributed for the use of various aquarium and museum departments may be designated by the Board of Trustees to general operations.

3. The building fund accounts for resources contributed specifically for the purpose of constructing the Fish Roundabout and the Wattis Hall of Man.

c. The endowment fund is comprised of unrestricted gifts and bequests. Unrestricted gifts in excess of \$10,000 are credited to this fund. The principal amount of the gifts and bequests is not maintained intact in perpetuity. Transfers from the endowment fund and dispositions of its principal are made at the discretion of the governing board. The endowment investment income is credited, as earned, to the current general operating fund.

2. Research Grants Receivable

Grants receivable represent amounts pledged to the Academy for certain operations and for the completion of designated projects in future years. The grants will be collected as expenditures are made for the designated project. A summary of grants receivable follows:

National Science Foundation	\$341,013
National Endowment of the Arts	21,391
	<u>\$362,404</u>

3. Investments

Investments are recorded at cost or, if acquired by gift, at their fair market value at the date of acquisition. A summary of the current market value of the marketable securities for each fund follows:

	Book value	Market value
Special purpose fund	\$1,538,130	\$1,596,775
Endowment fund	\$2,115,887	\$2,010,772

The Academy owns an eleven story, fully depreciated office building located in the City of San Francisco. The value that is recorded on the books of account represents the cost of the land.

During 1976, the Academy was given farm land located in Fresno and San Benito counties. The property, which consists of 19,000 acres of land, was recorded at its estimated fair market value.

4. Buildings

Under the terms of the Charter of the City and County of San Francisco, no one other than the City may hold title to buildings on City property. As the Academy facilities in Golden Gate Park are acquired, title is transferred to the City and County of San Francisco. The buildings were valued at \$18,747,994 by independent appraisal in 1976.

5. Collections, Library and Equipment

Collections, library and equipment are expensed in the year of acquisition. The Academy staff has estimated the replacement cost of collections, library, and equipment to be in excess of \$10,000,000.

6. Employees' Pension Annuity

On January 1, 1964, the Academy adopted a pension annuity plan for all regular full-time staff members under the age of 59 as of that date. On January 1, 1976, this plan was amended to comply with the Employee Retirement Income Security Act of 1974.

Under the provision of the plan, the Academy and the employees each fund one-half of the pension cost. The Academy's contributions are based on 5% of the amount of salary subject to Social Security tax and 7½% of the amount of salary above the Social Security tax base. Total pension expense for the year was \$46,897. There is no past service liability, and it is the Academy's policy to fund current pension costs.

7. Trusts

The Academy is the ultimate beneficiary under an irrevocable living trust in the amount of \$150,273 (market value \$147,394). The income of the trust is paid to the grantors and the Academy bears the cost of all trust operations. The assets of the trust are not shown in the accompanying financial statements.

The Academy is the trustee and a fifty percent beneficiary under each of two irrevocable unitrust agreements which, together, had a market value at June 30, 1976 of \$703,125. Each grantor receives an annual amount equal to six percent of the net fair market value of the assets of the respective unitrust. These trusts absorb the costs of their operations. The assets of the trust are not shown in the accompanying financial statements. Distributions of the unitrust agreements, for the fiscal year ended June 30, 1976 totaled \$32,147.

8. Support from the City and County of San Francisco

Section 6.404d of the Charter of the City and County of San Francisco states that the City shall provide funds necessary for the maintenance of the Steinhart Aquarium and funds deemed proper for the maintenance of the Academy buildings. During the fiscal year ended June 30, 1976, the Academy received \$815,595 from the City and County of San Francisco for this support.

In addition, the City provided Federal funds for the employment of three janitors, three museum guards and two account clerks at the Academy. These eight persons were assigned as members of the Comprehensive Employment and Training Act of the Federal Government. The amount of these Federal funds has not been included in the accompanying financial statements.

9. Furniture, Fixtures and Equipment

The Academy departs from generally accepted accounting principles in that it expenses such assets as acquired instead of capitalizing them and amortizing the costs over the useful lives thereof. During the year, the Academy acquired furniture, fixtures and equipment costing \$255,089. Approximately \$119,725 of these expenditures was to purchase two new elevators for the commercial building.

CONTRIBUTIONS

Each year we take great pleasure in acknowledging the support given the Academy by business organizations, private foundations and individuals, whose gifts—past and present—have made possible scientific research, curatorial activities, field expeditions, educational programs and public exhibits. A number of Academy programs are funded either directly through gifts, grants and bequests, or indirectly through income from endowment and contributed property. In terms of capital expenditures, all of the Academy's buildings have been made possible by private benefactions. Because of this continued private support, the Academy is ranked as one of the leading museum-research-educational institutions in the country.

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The Academy would also like to give thanks and a continuing vote of appreciation to the thousands of individuals whose contributions through gifts, bequests, volunteer service, membership participation and dues have advanced inestimably the work of the Academy.

WATTIS HALL OF MAN CONTRIBUTORS

The following persons and organizations provided funds for the construction and development of the Wattis Hall of Man addition. Others gave their time and services. The list is incomplete and some substantial support was anonymous. All gifts for the project are appreciated by the Academy's trustees and staff members. These contributors have provided a facility which benefits every department of the Academy, the broad scientific and educational community, and the scores of millions of visitors who will enjoy the Halls and Galleries through future years.

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The celebration of the opening of the Wattis Hall of Man addition on June 30 concluded the Academy's 1975-76 fiscal year.

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